Chapter 4.4.7: Groundwater Resources, Aquifers, and Reservoirs

4.4.7-1 INTRODUCTION

This chapter assesses the potential impacts of the Project on potable water supplies, including groundwater resources, aquifers, and reservoirs.

4.4.7-2 METHODOLOGY

The U.S. Environmental Protection Agency (USEPA) defines a sole or principal source aquifer as an aquifer that supplies at least 50 percent of the drinking water consumed over the area overlying the aquifer. Such areas can have no alternative drinking water source(s) that could physically, legally, and economically supply all residents who depend on the aquifer for drinking water. All designated sole or principal source aquifers are referred to as "sole source aquifers" (SSAs). SSAs are regulated under Section 1424(e) of the USEPA Safe Drinking Water Act (SDWA) of 1974, "Sole Source Aquifer Protection Program." This program requires USEPA to review all proposed projects within the designated SSA that are to receive federal financial assistance. The USEPA's review of the proposed projects is to ensure that actions do not endanger the water source.

Groundwater Quality Standards and Groundwater Effluent Limitations for New York waters are set forth in 6 NYCRR Part 703. In addition, 6 NYCRR Part 701, Classifications–Surface Waters and Groundwaters, assigns specific categories to New York waters. Combined, 6 NYCRR Parts 701 and 703 establish the designated uses to be achieved for such waters and specify the water quality criteria necessary to protect New York State's waters. Designated uses for groundwater include potable water, sources of potable mineral water, or as receiving water for disposal of wastes.

Title 8 of Article 17 of the Environmental Conservation Law, Water Pollution Control, authorized the creation of the State Pollutant Discharge Elimination System (SPDES) permit program to regulate discharges to New York State's waters. The SPDES program is a federally authorized program under the Clean Water Act, whereby New York through the New York State Department of Environmental Conservation (NYSDEC) administers the federal Clean Water Act for discharges to waters in the state, among other activities. Activities requiring a SPDES permit include point source discharges of wastewater into surface or ground waters of the state, including the intake and discharge of water for cooling purposes, constructing or operating a disposal system, discharge of stormwater, and construction activities that disturb one or more acres.

4.4.7-3 EXISTING CONDITIONS

4.4.7-3-1 Groundwater

Groundwater within the Project site is classified as Class GA waters by the NYSDEC. Class GA waters are deemed fresh groundwater. As set forth in NYSDEC's regulations, the best usage of Class GA waters is as a source of potable water supply. Based on topographic features, groundwater in the area of the Project site is expected to flow toward the Genesee River basin.

Precipitation within the Project area recharges to groundwater through pervious surfaces, including soils and the existing railroad ballast.

In the Project area, some groundwater reaches the surface in the form of seeps, which are small wet areas. Wetland A on the Project site may include water from a seep.

4.4.7-3-2 Aquifer Areas

Based on USEPA and NYSDEC aquifer data files, the Project is not located in a USEPA and/or NYSDEC-identified Primary Water Supply or Principal Aquifer Area. Thus, no further investigation of USEPA- and NYSDEC-designated aquifers is required.

4.4.7-3-3 Public Wells, Private Wells, and Reservoirs

No municipal drinking water wells, wellhead influence zone, or reservoirs are located within the Project site according to the New York State Atlas of Community Water System Sources (1982).

Two U.S. Geological Survey (USGS) observation wells exist in Livingston and Wyoming Counties. USGS Well No. 423743078070802 is located in the Town of Gainesville in Wyoming County, approximately 10 miles northwest of the Project site. The total well depth is 20.3 feet below existing surface grade. The highest water level depth was recorded at 7.89 feet below existing surface grade on March 5, 1976. The lowest water depth was recorded at 14.0 feet below existing surface grade on November 3, 1974. The second USGS observation well, well No. 425833077503901, is located in the Town of Caledonia in Livingston County, approximately 30 miles north of the Project site. The total depth of the observation well is 31.0 feet below existing surface grade. The highest water level depth was recorded at 6.0 feet below existing surface grade on April 10, 2005. The lowest water depth was recorded at 13.87 feet below existing surface grade on November 18, 2007.

The USGS has conducted extensive groundwater quality monitoring within the Genesee River basin. In 2005 and 2006, the USGS, in cooperation with NYSDEC, monitored seven municipal water system wells and 15 private domestic wells. The wells were analyzed for five physical properties (pH, specific conductivity, dissolved oxygen, color, and temperature) and 226 chemical constituents. Of the 22 wells sampled, only one (Well WO 349), was located within the general vicinity of the Project site. Well WO 349 is approximately 5 miles southwest of the Project site and is a community water system well. Well WO 349 was constructed within a sand and gravel aquifer and is approximately 32 feet below existing surface grade. Analysis of groundwater samples from WO 329 indicated no chemical concentrations above Maximum Contaminant Levels (MCLs), Secondary MCLs, or Health Advisory levels established by EPA.

4.4.7-3-4 New York City Watershed

The Project site is not located within the New York City watershed; thus, no further investigation in coordination with the New York City Department of Environmental Protection is required.

4.4.7-4 EFFECTS ASSESSMENT

4.4.7-4-1 No Action Alternative

Under the No Action Alternative, the existing bridge and approach tracks would not be altered, and there would be no new construction within the Project site. The No Action Alternative, therefore, would not disturb groundwater resources, aquifers, or reservoirs within the vicinity of the Project site.

4.4.7-4-2 Preferred Alternative

With the Preferred Alternative, groundwater dewatering may be required during construction in certain locations, depending on the types of foundations to be used for the bridge, the location of utility trenches, and construction means and methods. If dewatering is required, groundwater samples will be collected prior to construction in areas where dewatering may occur. These samples will be tested for potential contamination. The results will be compared to applicable surface water quality standards, among other standards, to determine the water quality and level of treatment, if required, for discharge to surface water. As appropriate, the applicable regulatory agencies may be contacted regarding sampling parameters and a jurisdictional determination may be sought regarding potential permit parameters. Discharge of water would be conducted in accordance with applicable requirements and other guidelines or regulations as appropriate for the discharge to surface water.

The Preferred Alternative would require the placement of fill in a 0.03-acre portion of Wetland A (see discussion in Chapter 4.4.1, “Wetlands”). As noted above, Wetland A may include water from a groundwater seep, among other sources. Groundwater would continue to form seeps in other suitable locations nearby, and filling of a portion of the wetland would not adversely affect groundwater flow on the Project site.

Therefore, the Preferred Alternative would not result in adverse impacts on groundwater resources, aquifers, or reservoirs within the vicinity of the Project site.

4.4.7-5 SUMMARY OF MITIGATION

As described above, should groundwater dewatering be required, discharge of water would be conducted in accordance with applicable requirements for such discharges to surface water. Requirements could include treatment measures such as settling basins to separate sediments from the groundwater prior to their discharge to surface waters.